

## **ABSTRACT OF THE INVENTION**

Methods that provide for the rapid and simultaneous screening of large numbers of samples for several polymorphisms of a cytochrome P450 enzyme are disclosed. The assays can be used to rapidly determine if polymorphisms in a gene encoding a cytochrome P450 enzyme are present in the genome of an individual. An exemplary P450 enzyme to which the invention is applied is CYP2D6, which metabolizes many different drugs and other chemicals. Genetic polymorphisms in CYP2D6 and other P450 enzymes result in a range of phenotypes, from poor metabolizers to ultraextensive metabolizers, that have different abilities to metabolize chemicals including drugs. Identifying which polymorphisms are present in an individual patient allows one to tailor a drug therapy strategy that best fits that specific patient. The assays are thus useful in the field of pharmacogenetics.